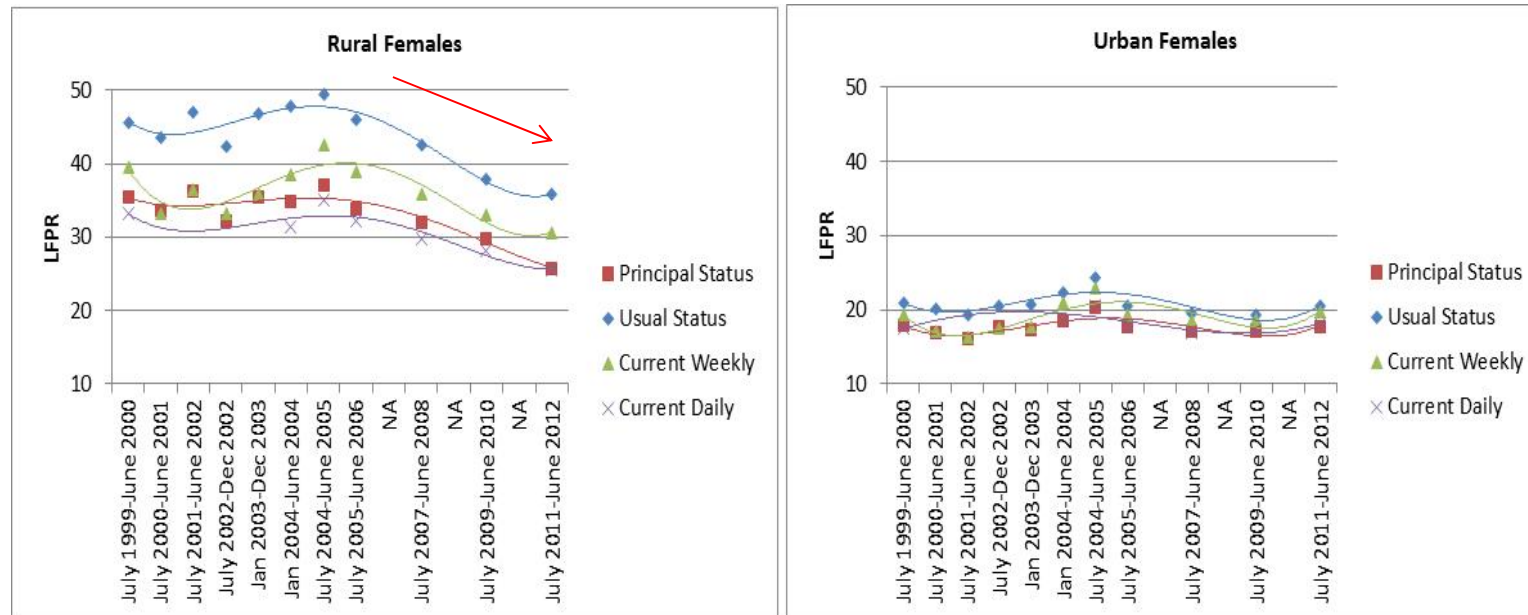# Job Opportunities along the Rural-Urban Gradation And Female Labor Force Participation in India

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# Trends in Labor Force Participation in India 2000-2012

Females Aged 15+:

➢ Massive decline in LFPR (12-14 percentage points) in rural areas after 2004-05

➢ Very low participation in urban areas

➢ Big and persistent rural-urban gap (15-25 percentage points)

➢ Female LFPR in India unusually low, compared to other countries

Trends in Labor Force Participation in India 2000-2012

Males Aged 15+:
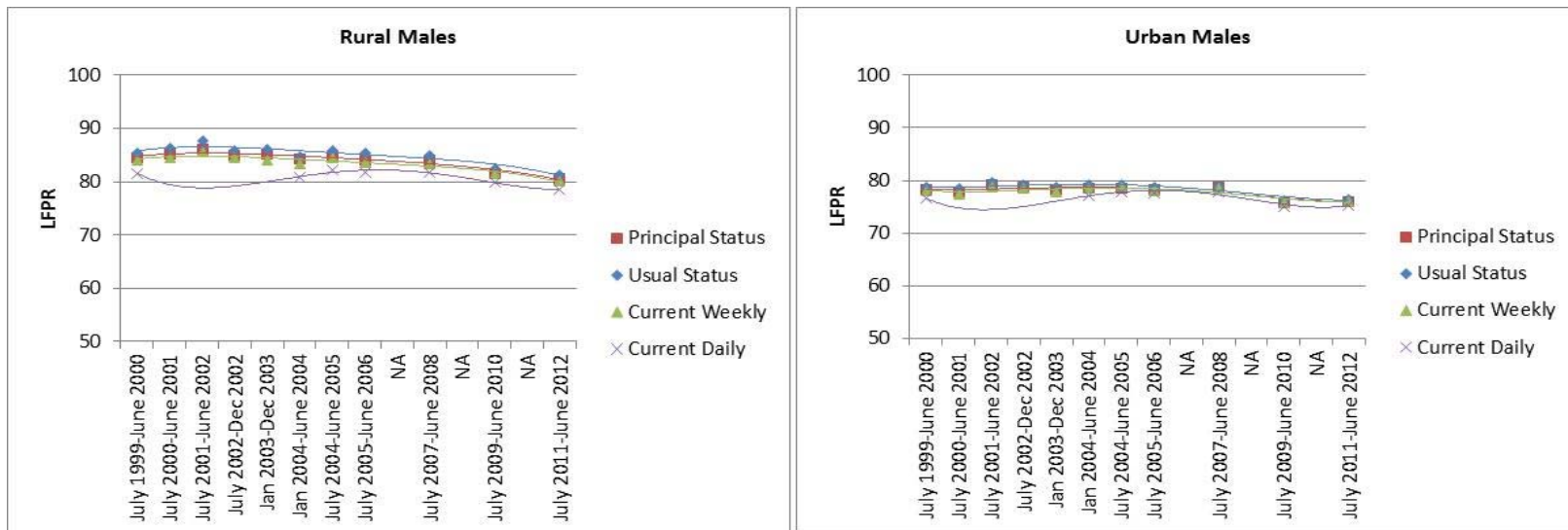
➢ Most working age males participate in the labor force

Key questions

1. What explains the recent decline in Female LFPR in rural areas?

2. What explains the big rural-urban gap in Female LFPR ?

1. SUPPLY-SIDE EXPLANATIONS

Supply-side Suspects:

- Increased Incomes and Schooling: Himanshu (2011) Rangarajan et al. (2011), Kannan et al. (2012), Neff et al. (2012), Abraham (2013), Klassen and Peters (2013)

- Social and Cultural Norms (preferences): Olsen et al. (2006), Chowdhury (2011)

- Institutional : Inadequate Child Care Support - Narayanan (2008), Das et al. (2006)

Limits to Supply-side (1): Increased Schooling Fails to Explain Drop in LFPR of Older Aged Cohorts
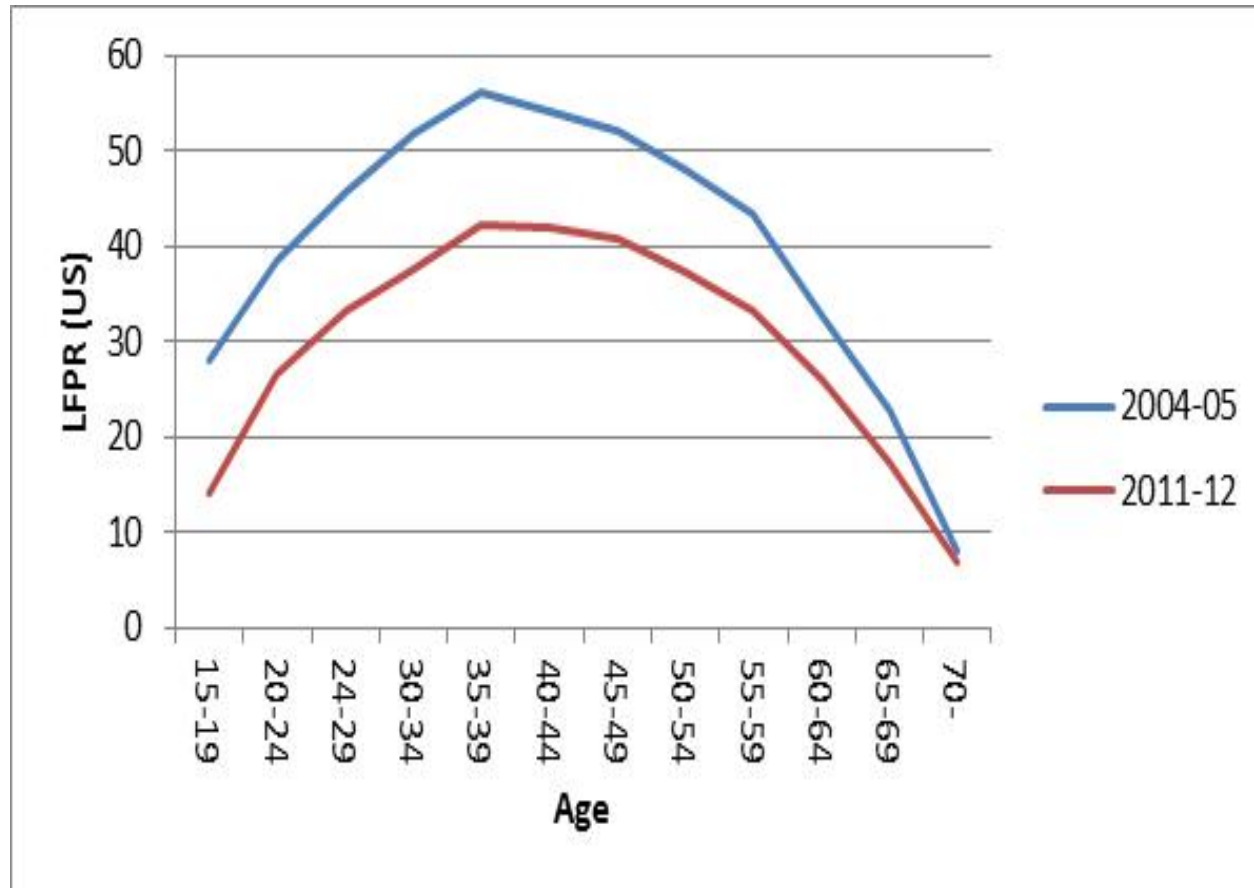
Limits to Supply-Side (2): Weak Evidence for Income Effect

➢ Female LFPR declines with household income at the aggregate level; less so within either rural or urban areas
➢ Decline in the aggregate reflects a composition effect
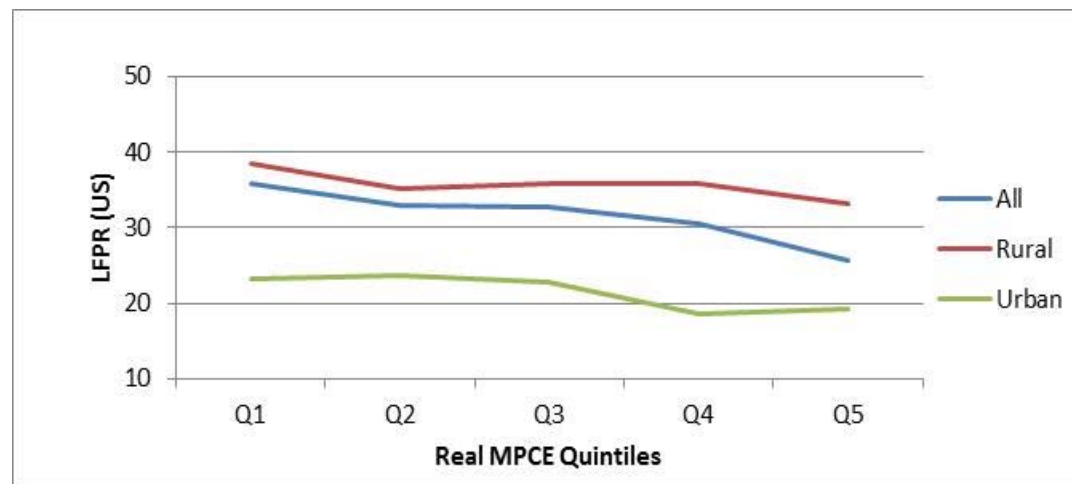
➢ Drought of 2009-10 was the worst in three decades, but Female LFPR did not increase that year but fell dramatically
➢ Back of the envelope – a doubling of real wages would be associated with a 3 percentage point reduction in LFPR
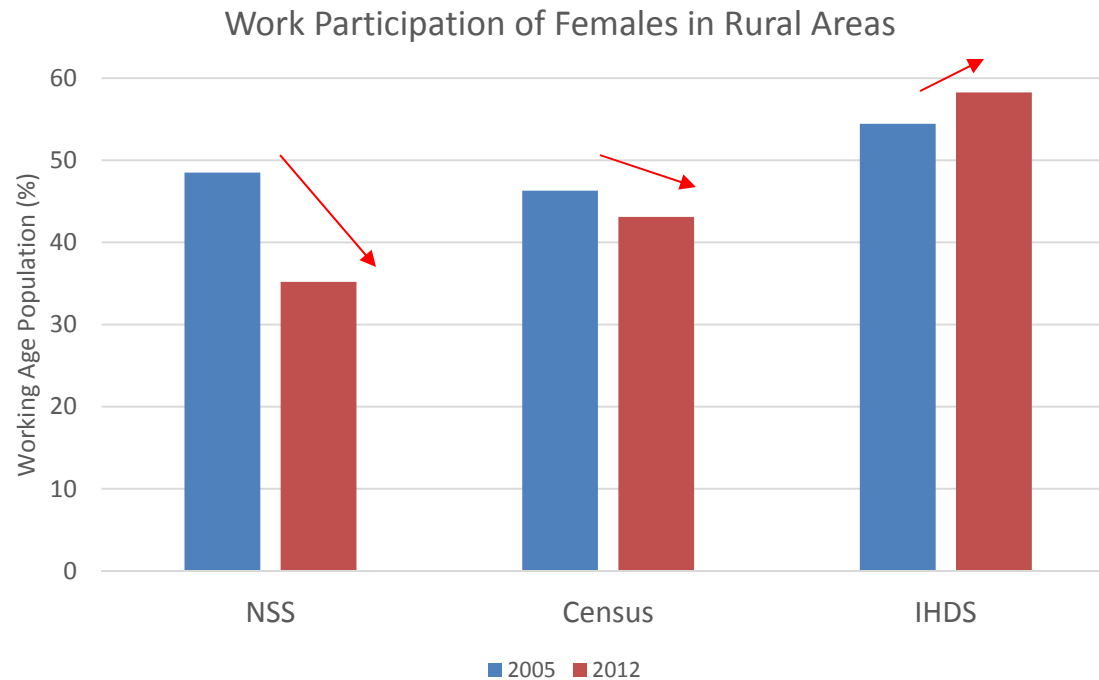
2. (MIS)MEASUREMENT

"Code 93" – some activities not counted as work

NSS Status	Type of Activity	2004-05	2011-12	Percentage Change
in-LF	Self-employed	25	17	-8
in-LF	Regular	4	4	0
in-LF	Casual	13	10	-3
in-LF	Unemployed	1	1	0
out-LF	In school	6	10	3
out-LF	Domestic duty only	29	31	2
out-LF	Domestic duty+free collection for hh use	16	23	6
out-LF	Remittance recipients, pensioners	1	1	0
out-LF	Cannot work because of disability	1	2	1
out-LF	Others	4	3	-1
All		100	100	

Some job seekers/workers not counted as LFP

Labor Force Participation, 15+, 2011-12 Usual Status		
	LFPR without adjustment	LFPR adjusted for those recorded as not in labor force but 1) registered with placement agency OR 2) those who worked/sought work under MNREGA
Males		
Rural	81.3	83.2
Urban	76.4	78.8
Females		
Rural	35.8	40.6
Urban	20.5	25.3

Census, NSS and IHDS tell different stories

Work Participation of Females in Rural Areas
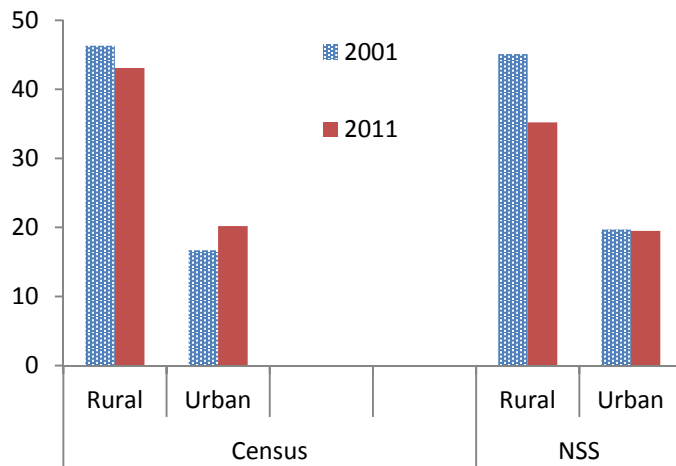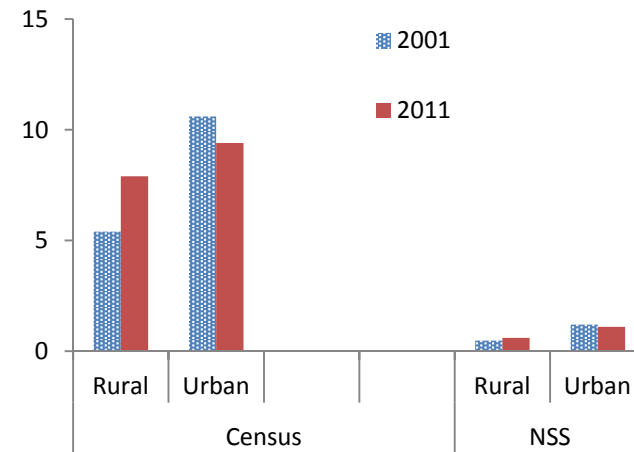
Excessively stringent criterion for LFPR: a person is not considered part of the labor force if she has not been looking for a job for *at least six months* during a year

Census and NSS comparable on employment; diverge on unemployment

**Female Employment**
(percent of working-age females)

Female Unemployment
(percent of working-age females)

Possible under-estimation of unemployment in NSS suggests that not all the decline in female LFPR was voluntary

Misclassification of urban areas as rural
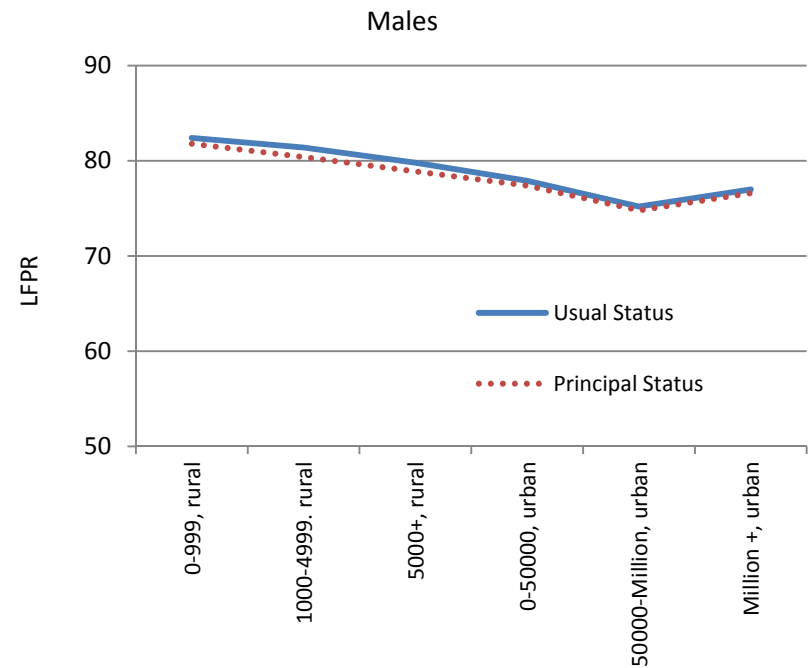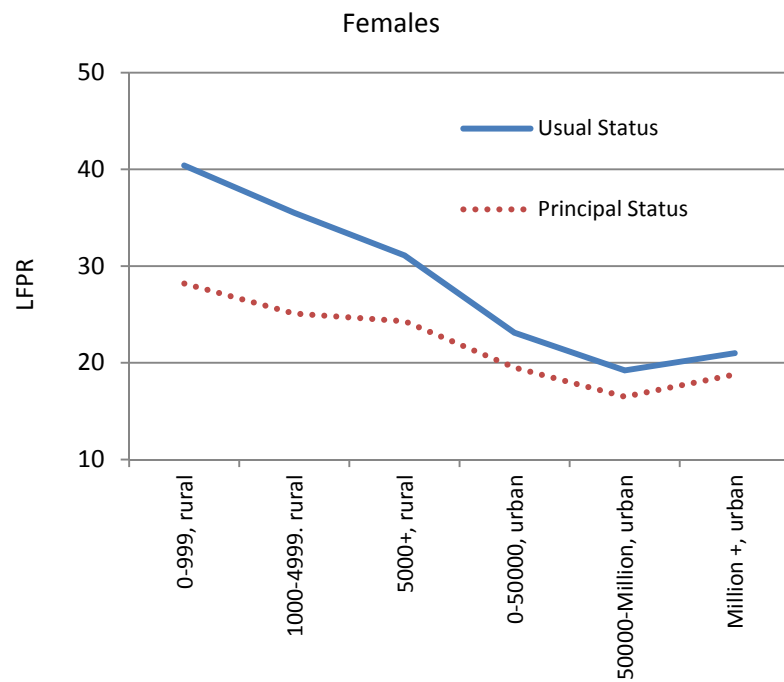
- If urbanizing areas are mis-classified as rural, part of the decline in rural Female LFPR could be a composition effect, reflecting urban-type outcomes in rural areas
    - NSS lags behind Census in Urbanization
    - Census itself lags behind reality
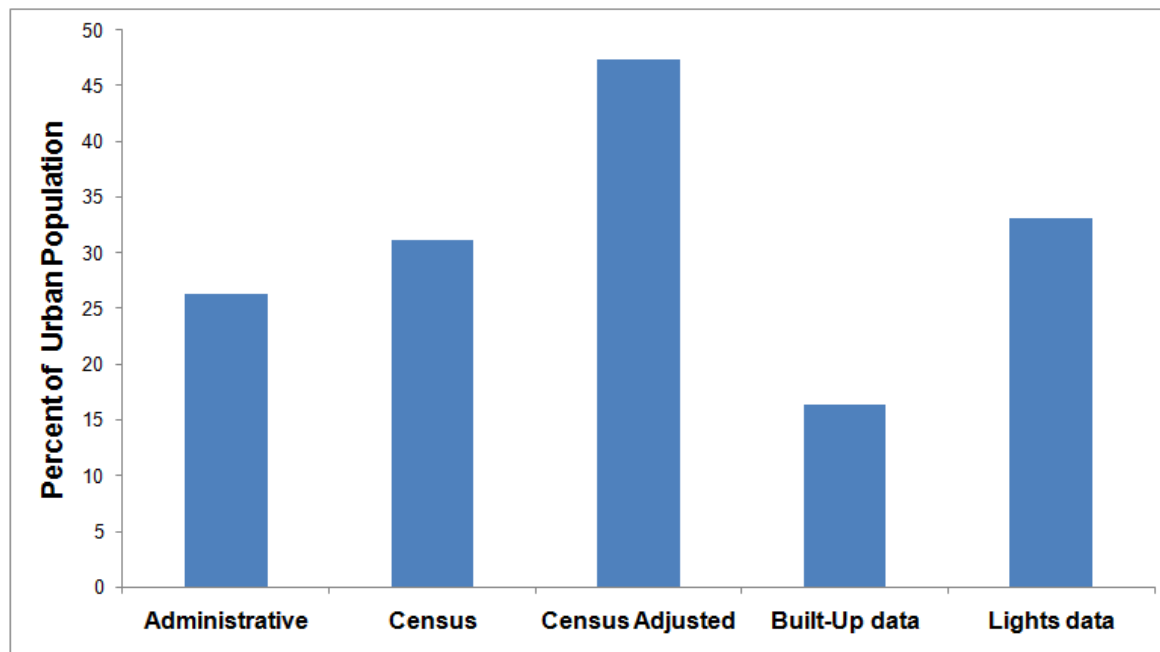
Source: South Asia Spatial Database; the comparison is for 2010-11.

3. DEMAND-SIDE (AND URBANIZATION) PERSPECTIVES

Location of work: Steady decline in participation along the rural-urban gradation

Females

LFPR

- Usual Status
- Principal Status

(x-axis) 0-999, rural | 1000-4999. rural | 5000+, rural | 0-50000, urban | 50000-Million, urban | Million +, urban

Males

LFPR

- Usual Status
- Principal Status

(x-axis) 0-999, rural | 1000-4999. rural | 5000+, rural | 0-50000, urban | 50000-Million, urban | Million +, urban

Types of jobs vary along the Rural-Urban Gradation
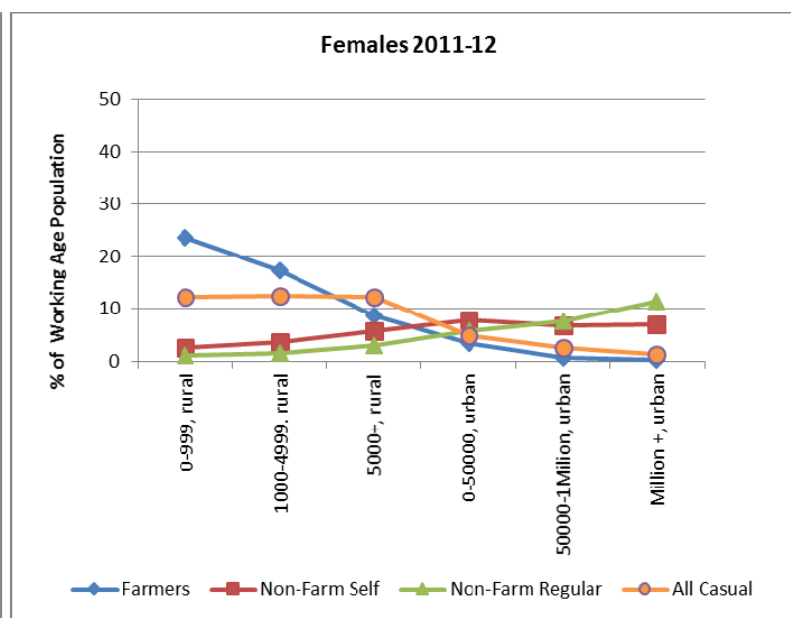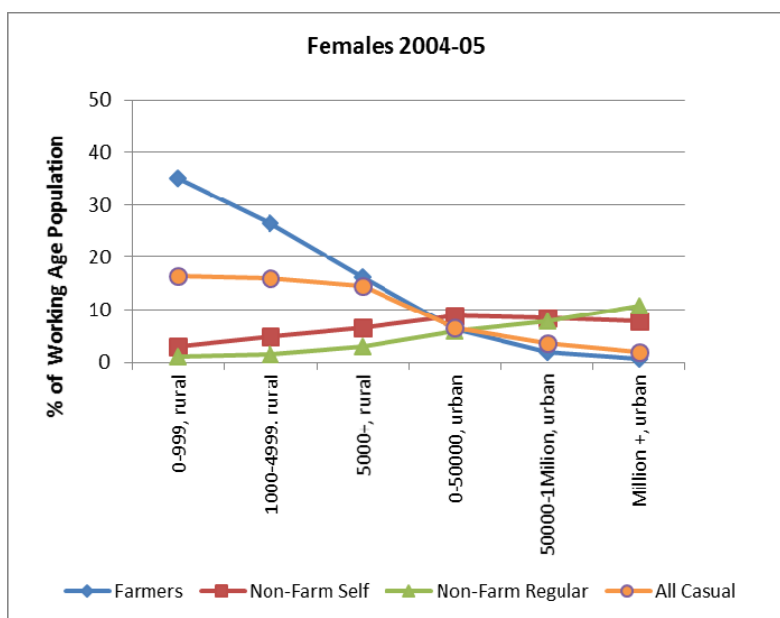
➢ "Valley of suitable of jobs" for women along the rural-urban gradation: at home (farming) or regular jobs
➢ Massive decline in such suitable jobs in villages and small towns

Two Key Contributions

1. Literature on FLFP: estimate the relative contribution of **both supply and demand** factors in explaining the decline in FLFP by using a multivariate regression framework

2. Tools: construct indicators below the district level and at the level of the village or town, along six ranks in the **rural-urban gradation.**

Hypotheses

1. When there are better **job opportunities** in the area where the household lives, women's participation is higher.

2. The **misclassification** of urban areas as rural makes the effect of urbanization on participation look as a change in participation within rural areas.

3. When the employment structure is not taken into account, the role of **urbanization** is over-estimated.

4. Not taking into consideration the location where people live, including the possible misclassification of urban areas as rural, and their employment structure, biases the estimates of **individual and household** effects.

5. The standard supply-side specification attributes to a change in **preferences** a decline in LFPR actually due to a change in employment opportunities

Model: Series of Nested Specifications

- Model A: $LFP = f_A(Individual, Household, Time)$

- Model B: $LFP = f_B(Individual, Household, Time, Location)$

- Model C: $LFP = f_C(Individual, Household, Time, Location, Gap)$

- Model D: $LFP = f_D(Individual, Household, Time, Location, Gap, Job\ Opportunities)$

LFP: is the binary choice of participating in the labor market.

Individual: age, education and marital status.

Household: household composition, land owned, social and religion group.

Time: year of the NSS survey (2004-05 and 2011-12)

Location: rural-urban gradation in the NSS

Gap: Urban Share in Census (5000 cut off) –Urban Share in NSS

Job Opportunities : local employment (below district) and local excess demand (location fixed effect)

Empirical Strategy and Data

Data
- NSS 61st (2004-05) and 68th (2011-12) Employment and Unemployment Surveys.

- Sample of 100,000-120,000 households

- Construction of location variable:
  - Rural: Link Census 2001 with NSS at the substratum level to calculate average village size. 3 ranks: 0-999, 1000-4999 and 5000+
  - Urban: Reclassify using city size. 3 ranks: 0-50000, 50000-Million, Million+

- Robustness:
  - Correct for spurious correlation and endogeneity using IV
  - Battery of checks using different employment definitions, married women, age groups etc.

Main Results

| Dependent Variable: Labor Force Participation				
	Model A	Model B	Model C	Model D
Age	0.045***	0.046***	0.046***	0.052***
age_sq	-0.001***	-0.001***	-0.001***	-0.001***
schooling	-0.034***	-0.033***	-0.033***	-0.038***
schooling_sq	0.002***	0.002***	0.002***	0.003***
marital_dummy	-0.055***	-0.058***	-0.058***	-0.060***
log_land	0.040***	0.034***	0.033***	0.007***
log_land_sq	0.003***	0.004***	0.004***	-0.001**
log_hhsize	-0.056***	-0.052***	-0.053***	-0.011
children_under_6	-0.066***	-0.080***	-0.080***	-0.085***
children_above_6	0.069***	0.060***	0.060***	0.117***
female_adult	0.033	0.031	0.033	0.040
female_dependent	0.057***	0.056***	0.056***	0.046**
male_dependent	0.135***	0.140***	0.141***	0.140***
female_hh_dummy	0.133***	0.133***	0.134***	0.141***
max_schooling	-0.012***	-0.009***	-0.010***	-0.012***
st_dummy	0.220***	0.202***	0.200***	0.135***
sc_dummy	0.093***	0.077***	0.077***	0.077***
obc_dummy	0.072***	0.065***	0.066***	0.050***
hindu_dummy	-0.057***	-0.056***	-0.056***	-0.023***
muslim_dummy	-0.173***	-0.165***	-0.164***	-0.095***
survey	-0.110***	-0.116***	-0.115***	-0.003
rank==2		-0.022***	-0.020***	0.012**
rank==3		-0.044***	-0.032***	0.024***
rank==4		-0.117***	-0.114***	0.084***
rank==5		-0.167***	-0.165***	0.030***
rank==6		-0.154***	-0.157***	0.033*
gap			-0.052***	-0.051
all_farmers_share				1.617***
all_non_farm_self_share				1.645***
all_casual_share				1.525***
all_non_farm_regular_share				1.559***
District Fixed Effects	No	No	No	Yes
Number of Observations	317046	317046	317046	316978
Wald Chi Sq	13869	15716	15831	33169
Pseudo R2	0.13	0.14	0.14	0.28
note: *** p<0.01, ** p<0.05, * p<0.1				

Individual

Household

Time

Location

Gap

Job Opportunities

Main Results: Income Effect Weaker
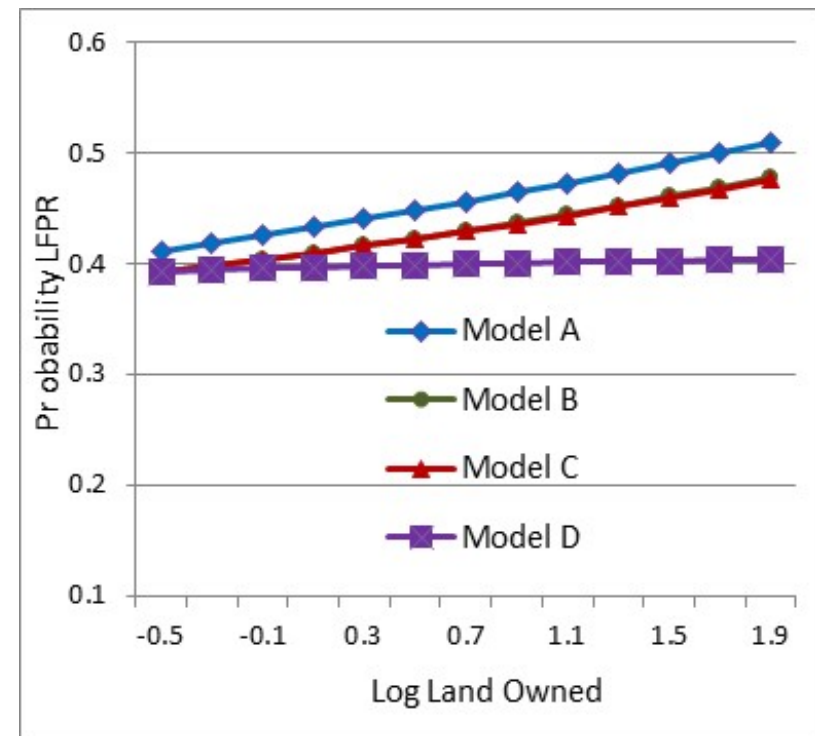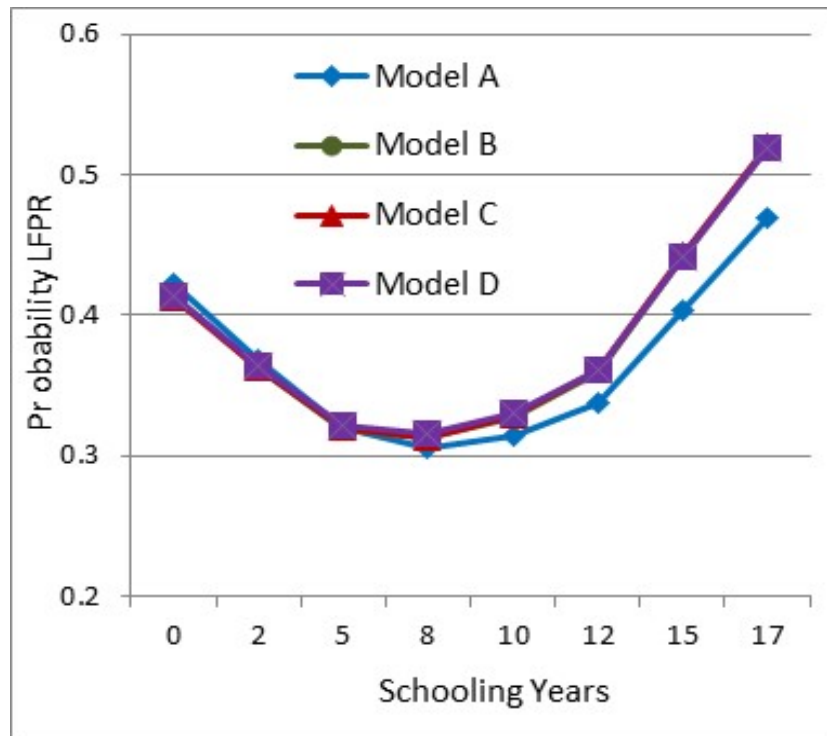
Main Results: Urbanization per se matters less
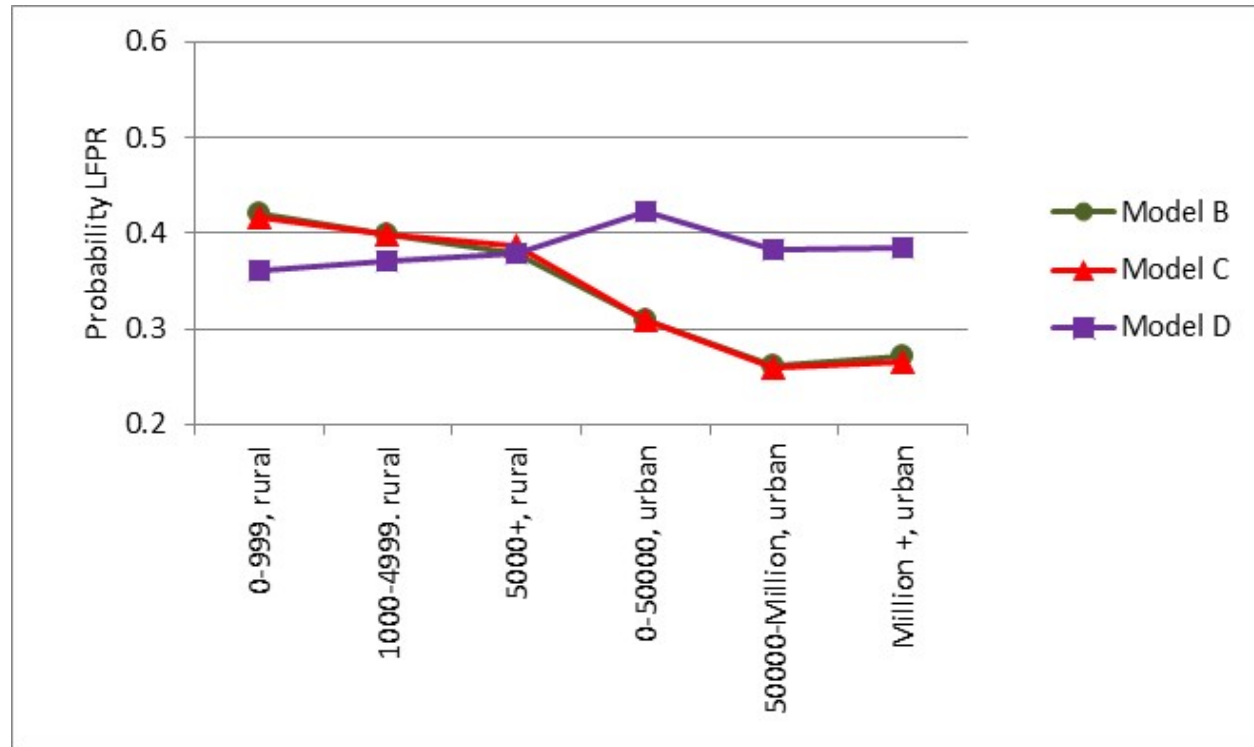
Interpreting the Results

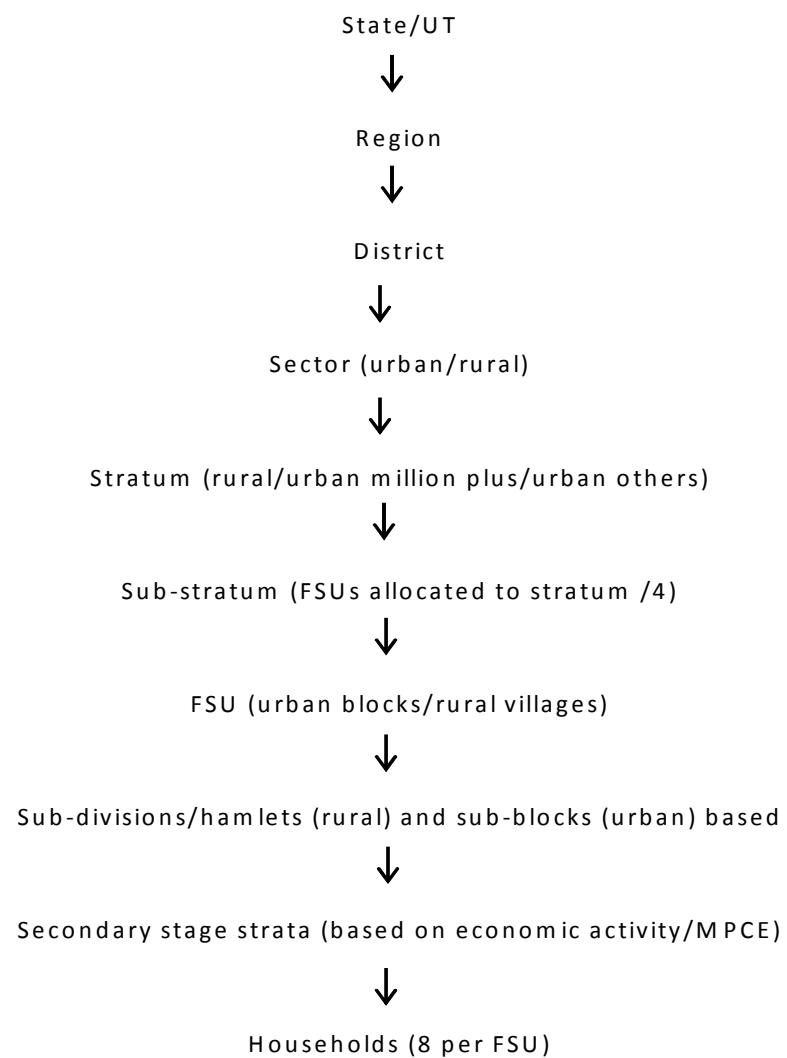| Predicted LFPR change (percentage points)			
	Model D	Model D +IV	Model D +IV+Job Type Only
Individual (including education)	-0.9	-1.0	-1.0
Household (including children and elderly)	-1.1	-1.4	-1.5
Time (interpreted as preferences)	-0.3	-4.1	-9.5
Location (measured urbanization)	0.1	0.1	0.2
Gap (unmeasured urbanization)	-0.1	-0.2	-0.2
Employment (availability of suitable jobs)	**-12.7**	**-7.9**	**-2.5**
Predicted total change	-15.0	-14.5	-14.4

Thank You

Appendix

Data

- NSS 61st (2004-05) and 68th (2011-12) Employment and Unemployment Surveys.

- Stratified Multi-Stage Sampling Design

- First Stage Units:
  - Rural: Census Villages (except Kerala)
  - Urban: NSSO Urban Frame Survey (UFS) Block

- Ultimate Stage Units: Households

- Sampling Frame for NSS 61 and NSS 68:
  - Rural: Census 2001
  - Urban: Latest Available UFS

- Sample of 100,000-120,000 households

Construction of Location Variables

- Rural
    - Reclassify rural areas in every district based on average village size of a substratum.
    - Link Census 2001 with NSS at the substratum level to calculate average village size.
    - 4 Ranks: 0-999, 1000-4999, 5000-9999, 10000+

- Urban
    - Reclassify urban areas in every district based on city-size
    - 3 Ranks: 0-50000, 50000-1 Million, Million+

- New districts created after 2001 were merged with their parent districts
- Match all districts except those in Delhi, Nagaland, A&N Islands and Daman & Diu.

Sampling Design of NSS

State/UT

↓

Region

↓

District

↓

Sector (urban/rural)

↓

Stratum (rural/urban million plus/urban others)

↓

Sub-stratum (FSUs allocated to stratum /4)

↓

FSU (urban blocks/rural villages)

↓

Sub-divisions/hamlets (rural) and sub-blocks (urban) based

↓

Secondary stage strata (based on economic activity/MPCE)

↓

Households (8 per FSU)

Decline in LFPR Along the Rural-Urban Gradation

LFPR of Females Aged 15+ by Location